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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,792	05/09/2006	Marc Husemann	101769-315	4883

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EXAMINER

REDDY, KARUNA P

ART UNIT PAPER NUMBER

1713

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/539,792	Applicant(s) HUSEMANN ET AL.	
	Examiner Karuna P. Reddy	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/17/2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 4 is objected to because of the following informality: The claim recites "... a fraction of 0 to 35 percent by weight" of component (b). However, range of 31-35 percent by weight of component (b) is not permissible based on the weight percent of component (a) in polyacrylate. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because metes and bounds of the term "... are substantially identical" are not readily ascertainable from either the specification or claims.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4-5, 10-17 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt et al (5,910,522).

Schmidt et al disclose an adhesive comprising a transparent polymer and/or polymerizable oligomer and/or polymerizable monomer suitable for use as an adhesive, nanoscale inorganic particles and optionally compounds for surface modification of said inorganic particles (column 8, claim 1). Polymers that can be employed as transparent polymers include polyacrylates and polyvinyl compounds. Instead of the mentioned polymers, oligomers and/or precursors (monomers) thereof may be employed as well (column 3, lines 39-61). The listing of nanoscale inorganic particles include silicates (column 4, line 6) and have a particle size preferably from 2 to 50 nm and particularly from 5 to 20 nm (column 4, lines 36-38). Examples of surface modifier compounds include mono and polycarboxylic acids having 1 to 12 carbon atoms as well as their esters e.g. methyl methacrylate (column 5, lines 55-63).

A working example of the preparation of adhesive includes mixing methyl methacrylate, SiO<sub>2</sub> and styrene (column 7, lines 53-56). The density of methyl methacrylate and styrene is 0.933 g/cm<sup>3</sup> and 0.907 g/cm<sup>3</sup> respectively (Knovel critical tables – Publication 2003). Therefore, ratio of methyl methacrylate and styrene in working example will read on the weight percentages used in claim 4.

Furthermore, if polymerizable compounds are used, the adhesive also contains thermal or photochemical crosslinking initiators (column 6, lines 49-54). If the adhesive contains a crosslinkable compound, said compound is crosslinked and cured thermally and/or by irradiation depending on the type of crosslinking initiator employed (column 7, lines 19-24).

The finished adhesive is applied onto a substrate or said substrate is dipped into said adhesive (column 7, lines 13-14).

Therefore, Schmidt et al anticipates the instant invention of Husemann et al.

6. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt et al (5,910,522) as evidenced by Knoel (Knoel critical tables – Publication 2003).

The discussion with respect to Schmidt et al in paragraph 5 is incorporated herein by reference.

The proportion of nanoscale particles in adhesive composition of prior art is from 1 to 50 % by volume (column 4, lines 55-56) and weight fraction of instant claim is from 0.5 to 25. The density of inorganic silicates varies over a wide range from 2.0 to 6.5. Therefore, volume percentages of silicate in prior art encompasses weight fraction of the instant claim. Thus, Schmidt et al anticipate the instant claim.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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10. Claims 1-2, 4-6, 10-17, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Husemann et al (US 6,958,186 B2) in view of Schmidt (5,910,522).

Primary reference of Husemann et al discloses a double-sided adhesive tape comprising a layer of polyacrylate PSA (abstract). The polyacrylate PSA layer is composed of at least the following monomers i.e. 79 to 100% by weight of (meth)acrylates and/or their free acids with the formula  $\text{CH}_2=\text{C}(\text{R}_3)(\text{COOR}_4)$  where  $\text{R}_3$  is H or  $\text{CH}_3$  and  $\text{R}_4$  is H or alkyl chains having from 1 to 30 carbon atoms and upto 30% by weight of olefinically unsaturated monomers containing functional groups (column 8, lines 2-10). Examples of the olefinically unsaturated monomers include hydroxypropyl acrylate, hydroxyethyl methacrylate, maleic anhydride, itaconic acid and aromatic vinyl compounds such as styrene (column 8, lines 53-67, column 9, lines 1-10). Furthermore, it is possible optionally to add fillers such as silicates (column 13, 61-64) to the adhesive composition. The polymerization may be carried out in bulk, in the presence of one or more organic solvents, in the presence of water or in mixtures of water and organic solvents (column 9, lines 54-56). A range of polymerization methods in accordance with which the polyacrylate PSAs may alternatively be prepared can be chosen (column 13, lines 4-6). For optional cross-linking with UV light, UV-absorbing photoinitiators are added to the acrylate containing PSA's (column 14, lines 16-18). It is also possible to crosslink the acrylate containing

PSA with electron beams (column 14, lines 45-47). The polyacrylate PSA is coated onto release paper or release film (column 20, lines 28-29).

However, the primary reference is silent with respect to size of fillers such as silicates.

However, Schmidt et al teach an adhesive composition comprising polymers and nanoscale inorganic particles (column 8, claim 1) such as silicates (column 4, line 11). These nanoscale particles usually have a particle size of preferably 2 to 50 nm and particularly 5 to 20 nm (column 4, lines 36-38).

Schmidt et al also teaches that inclusion of nanoscale particles result in retention of optical transparency and a steep increase in thermo-mechanical properties of the adhesive. Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to use nanoscale silicate particles as fillers in Husemann et al's PSA composition to obtain the above mentioned advantages and thereby the present invention.

11. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al (5,910,522).

The discussion with respect to Schmidt et al in paragraph 5 is incorporated herein by reference.

However, the reference is silent with respect to functionalization and coating of silicate and/or silica gel particles.



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However, the prior art composition comprises polymerizable monomers, nanoscale inorganic particles (silicates) and crosslinking photo or thermal initiators. Thus, surface of silicate particles is in contact with the initiator and polymerizable monomer, which would lead to the silicate particles being functionalized with initiator and polymerizable monomer by adsorption. Photocuring of the said surface would lead to formation of a polymer coating on silicate particles. Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to utilize the disclosure of Schmidt et al and thereby obtain the present invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.

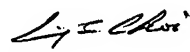
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karuna P Reddy  
Examiner  
Art Unit 1713

  
**LING-SUI CHOI**  
**PRIMARY EXAMINER**